

CPSC 304 Project Cover Page

Milestone #: 4

Date: April 5, 2023

Group Number: 30

Name	Student Number	CS Alias (Userid)	Preferred E-mail Address
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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia.

OUR PROJECT: GameHaven

GameHaven: A wiki forum where users can document information, discuss, and chat about their favourite games!

The database models information about specific games and the people that contributed to them, uploaded by users. Our frontend allows users to find information about video games, franchises, studios, and more. In its current form, the application also allows users to upload, edit, and delete information about video games in the database, although ideally after more development they would be able to do so for all articles on the site and make their own posts referencing their favourite games.

FINAL SCHEMA

For our final schema, we removed the initial primary key field, which was originally an integer id, from the VideoGame, Franchise, Character, and Developer relations and changed the primary key to the `name` field. The reasoning for this change is that the `name` fields in these relations, with the exception of the Character relation, were already candidate keys. Moreover, the majority of the queries we implement do not rely on the `id` and instead are based upon the `name` field. As a result, we found that maintaining the `id` field for these particular relations was unnecessary.

In addition, we also changed all the BIT domain types in the Role relation to TINYINT. This is because we found that when displaying the BIT types in our UI, the data was displayed as an object instead of 1s and 0s.

Underline indicates primary key, **bold** indicates foreign keys, *italics* indicate candidate keys:

VideoGame(name: CHAR(50), release_date: DATE, genre: CHAR(20), synopsis: TEXT, rating: CHAR(4), sales: INT, **developer_name**: INT, start_date: INT, end_date: INT, **franchise_name**: INT) [NOT NULL: name]

Franchise(name: CHAR(50), description: TEXT) [NOT NULL: name]

Developer(name: CHAR(50), website_link: CHAR(50), description: TEXT) [NOT NULL: name, UNIQUE: website_link]

Country(country: CHAR(50), country_code: CHAR(4)) [NOT NULL: country_code]

Studio(**developer_name**: INT, year_established: INT, country: CHAR(50), phone_number: CHAR(15))

IndividualDeveloper(**developer_name**: INT, birthdate: DATE)

Characters(name: CHAR(50), description: TEXT, history: TEXT) [NOT NULL: name]

VoiceActor(actor_id: INT, name: CHAR(50), biography: TEXT, birthdate: DATE) [NOT NULL: name]

VideoGameHasCharacter(**game_name**: INT, **character_name**: INT, **actor_id**: INT, role: CHAR(20))

Post(post_id: INT, title: CHAR(50), body: TEXT, views: INT, **username**: CHAR(50)), time_created: DATETIME) [NOT NULL: title, body, views, username, time_created]

PostTagsVideoGame(**post_id**: INT, **game_name**: INT)

Comment(comment_id: INT, body: TEXT, **username**: CHAR(50), time_created: DATETIME, **post_id**: INT) [NOT NULL: body, username, time_created]

Users(username: CHAR(50), email: CHAR(50), password: CHAR(50), role: CHAR(20)) [NOT NULL: email, password, role, post_permission, remove_post_permission, change_roles_permission]

Roles(role: CHAR(20), post_permission: TINYINT, remove_post_permission: TINYINT, change_roles_permission: TINYINT) [NOT NULL: post_permission, remove_post_permission, change_roles_permission]

DATA IN EACH RELATION AFTER SCRIPT

Select a table: videogame

☒ name☒ release_date☒ genre☒ synopsis☒ rating☒ sales☒ developer_name☒ start_date☒ end_date☒ franchise_name

Query

Results

name	release_date	genre	synopsis	rating	sales	developer_name	start_date	end_date	franchise_name
Braid	2009-09-06	Puzzle-platform	Braid is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	E10+		Jonathan Blow	2004	2010	
Fez	2012-04-13	Puzzle-platform	The player-character Gomez receives a fez that reveals his two-dimensional (2D) world to be one of four sides of a three-dimensional (3D) world.	E	1000000	Phil Fish	2007	2012	
Grand Theft Auto V	2013-09-17	Action-adventure	Set within the fictional state of San Andreas, based on Southern California, the single-player story follows three protagonists—retired bank robber Michael De Santa, street gangster Franklin Clinton, and drug dealer and gunrunner Trevor Philips—and their attempts to commit heists while under pressure from a corrupt government agency and powerful criminals.	M	175000000	Rockstar North	2008	2022	Grand Theft Auto
Kentucky Route Zero	2020-01-28	Point-and-click adventure	Kentucky Route Zero follows the narrative of a truck driver named Conway and the strange people he meets as he tries to cross the mysterious Route Zero in Kentucky to make a final delivery for the antiques company for which he works.	T					
Kingdom Hearts III	2019-01-25	Action role-playing	Kingdom Hearts III is the twelfth installment in the Kingdom Hearts series, and serves as a conclusion of the "Dark Seeker Saga" story arc that began with the original game.	E10+	6700000	Square Enix		2016	Kingdom Hearts
Outer Wilds	2019-05-28	Action-adventure	Named Game of the Year 2019 by Giant Bomb, Polygon, Eurogamer, and The Guardian, Outer Wilds is a critically-acclaimed and award-winning open world mystery about a solar system trapped in an endless time loop.	E10+	4000000	Mobius Digital	2012	2021	
Papers, Please	2013-06-08	Puzzle	As an immigration officer, the player must review each immigrant and return passports and other supporting paperwork against an ever-growing list of rules using a number of tools and guides.	M	1800000	Lucas Pope	2010	2014	
Pokémon Red and Blue	1996-09-28	Role-playing	The player controls the protagonist from an overhead perspective and navigates him throughout the fictional region of Kanto in a quest to master Pokémon battling.	E	31380000	Game Freak	1990	1996	Pokémon
Return of the Obra Dinn	2018-10-16	Adventure	Set in 1807, the player assumes the role of insurance inspector for the East India Company. The Obra Dinn, a merchant ship missing for five years, has reappeared off the coast of England with no one alive aboard. The player is dispatched to the ghost ship to perform an appraisal, reconstruct the events of the voyage, and determine the fates of all sixty souls aboard, providing a cause of death for those deceased or a probable current location for those presumed living.	M		Lucas Pope		2020	
Stardew Valley	2016-02-26	Simulation	Players take the role of a character who inherits a dilapidated farm in a place known as Stardew Valley.	E10+	20000000	Eric Barone	2011	2021	
Super Mario Bros.	1985-09-13	Platform	Players control Mario, or his brother Luigi in the multiplayer mode, as they traverse the Mushroom Kingdom to rescue Princess Toadstool from King Koopa (later named Bowser).	E	40240000	Nintendo		1987	Super Mario
Super Mario Galaxy	2007-11-01	Platform	As Mario, the player embarks on a quest to rescue Princess Peach, save the universe from Bowser, and collect 120 Power Stars, after which the player can play the game as Luigi for a more difficult experience.	E	12800000	Nintendo	2004	2007	Super Mario
Super Meat Boy	2010-10-20	Platform	The player controls Meat Boy, a red, cube-shaped character, as he attempts to rescue his girlfriend, Bandage Girl, from the antagonist Dr. Fetus.	T	1000000	Edmund McMillen	2008	2010	
The Legend of Zelda: Breath of the Wild	2017-03-03	Action-adventure	The player controls an amnesiac Link, who awakens from a hundred-year slumber, and attempts to regain his memories, save princess Zelda and prevent the further destruction of Hyrule by Calamity Ganon.	E10+	26000000	Nintendo		2017	The Legend of Zelda
The Legend of Zelda: The Minish Cap	2004-11-04	Action-adventure	The Minish Cap continues the story of the Four Swords, a weapon introduced in Four Swords and Four Swords Adventures. The game retains many elements common to previous Zelda games, especially top-down predecessors such as A Link to the Past, and includes new features and mechanics.	E		Capcom		2006	The Legend of Zelda
The Witness	2016-01-16	Puzzle	The player progresses by solving puzzles, which are based on interactions with grids presented on panels around the island or paths hidden within the environment.	E	100000	Jonathan Blow	2006	2016	
Untitled Goose Game	2019-09-20	Puzzle	Players control a goose who bothers the inhabitants of an English village.	E	1600000	House House		2019	

Select a table: franchise

☒ name☒ description

Query

Results

name	description
Grand Theft Auto	Grand Theft Auto (GTA) is a series of action-adventure games.
Kingdom Hearts	The series centers on the main character, Sora, and his journey and experiences with various Disney and Pixar characters, as well as some from Square Enix properties.
Pokémon	The franchise was created by Satoshi Tajiri in 1996, and is centred around fictional creatures called "Pokémon"
Super Mario	The Super Mario games are set primarily in the fictional Mushroom Kingdom, typically with Mario as the player character.
The Legend of Zelda	The series centres on the various incarnations of Link, a courageous young man of the elf-like Hylian race; and Princess Zelda, a magical princess who is the mortal reincarnation of the goddess Hylia

Select a table: developer

☒ name☒ website_link☒ description

Query

Results

name	website_link	description
Capcom	www.capcom.com	Capcom Co., Ltd. is a Japanese video game developer and publisher.
Edmund McMillen		Edmund McMillen is an American video game designer and artist known for his Flash game visual style.
Eric Barone		Eric Barone, also known by his alias ConcernedApe, is an American video game developer, video game designer, artist, composer, and musician.
Game Freak	www.gamefreak.co.jp	Game Freak Co., Ltd. is a Japanese video game developer, best known as the primary developer of the mainline Pokémon series of role-playing video games published by Nintendo and The Pokémon Company.
House House	househouse	House House is an independent video game developer based in Melbourne, Australia.
Jonathan Blow	http://number-none.com/blow	Jonathan Blow is an American video game designer and programmer.
Lucas Pope	dukope.com	Lucas Pope is an American video game designer. He is best known for experimental indie games, notably Papers, Please and Return of the Obra Dinn.
Mobius Digital	www.mobiusdigitalgames.com	
Nintendo	nintendo.com	Nintendo Co., Ltd. is a Japanese multinational video game company headquartered in Kyoto. It develops and releases both video games and video game consoles.
Phil Fish		Phil Fish is a French Canadian former indie game designer best known for his work on the 2012 platform game Fez.
Rockstar North	rockstarnorth.com	Rockstar North Limited (formerly DMA Design Limited) is a British video game development company and a studio of Rockstar Games based in Edinburgh.
Square Enix	square-enix.com	Square Enix Holdings Co., Ltd. is a Japanese multinational holding company, production enterprise and entertainment conglomerate, best known for its Final Fantasy, Dragon Quest, Star Ocean and Kingdom Hearts role-playing video game franchises, among numerous others.

Select a table:



country



country_code

Query

Results

country	country_code
Australia	61
Canada	1
Japan	81
United Kingdom	44
United States	1

Select a table:



name



birthdate

Query

Results

name	birthdate
Edmund McMillen	1980-03-02
Eric Barone	1987-12-03
Jonathan Blow	1971-01-01
Lucas Pope	
Phil Fish	1984-11-01

Select a table:



name



year_established



country



phone_number

Query

Results

name	year_established	country	phone_number
Capcom	1979	Japan	
Game Freak	1989	Japan	(334) 674-387
House House	2014	Australia	
Mobius Digital	2013	United States	
Nintendo	1889	Japan	(800) 255-3700
Rockstar North	1987	United Kingdom	
Square Enix	2003	Japan	

Select a table:

characters

☒ name

☒ description

☒ history

Query

Results

name	description	history
Bowser	Bowser, or King Koopa, is a fictional character, the main antagonist in Nintendo's Mario franchise.	He is a large, powerful, fire-breathing Koopa who leads the Koopa Troop, an evil kingdom of turtle-like creatures, and has been the arch-nemesis of Mario since his debut in Super Mario Bros. He has repeatedly kidnapped or attempted to kidnap Princess Peach with the ultimate goal of defeating Mario and taking over the Mushroom Kingdom.
Calamity Ganon	A recurring major antagonist in The Legend of Zelda series.	Calamity Ganon is known as a primal evil that has appeared throughout Hyrule's history.
Link	Link is the protagonist of the video game franchise The Legend of Zelda. He was created by Japanese video game designer Shigeru Miyamoto.	Link is the soul of a legendary hero that throughout history is reincarnated within a seemingly ordinary boy or man when the need arises for a new warrior to defeat the forces of evil.
Luigi	Luigi is Mario's younger twin brother and the secondary protagonist of the Mario franchise.	Throughout his life, he has lived in Mario's shadow, developing both cowardly and heroic tendencies. Despite this, Luigi has helped and fought alongside his brother on many occasions.
Mario	Mario is the title character of the video game franchise of the same name and the mascot of Japanese video game company Nintendo.	Mario is depicted as a portly plumber who lives in the fictional land of the Mushroom Kingdom with Luigi, his younger, taller brother.
Red	Red is the canon name of the protagonist of the Generation I games and is a Pokémon Trainer from Pallet Town, Kanto.	Red is known throughout the Pokémon world as the Champion from Pallet Town, as well as a living legend for his defeat of Team Rocket in Kanto during his quest.
Riku	Riku is a calm, cool, collected teenager who is not afraid to push the boundaries. He is tall and muscular with pale skin, bright blue-green eyes and silver hair.	Riku is introduced as a teenager who wishes to visit other worlds with his friends Sora and Kairi. After a way to other worlds is opened, Riku meets the evil fairy Maleficent who pits him against Sora, leading to Riku falling to darkness and ultimately being possessed by Ansem, Seeker of Darkness. Riku is freed thanks to Sora and returns as a protagonist in following games.
Sora	Sora is the main protagonist and main playable character in most of the Kingdom Hearts series.	He is a Keyblade wielder from the Destiny Islands where he, along with his childhood friends Riku and Kairi, dreamed of venturing away to find out what lies beyond their home.
Yoshi	Yoshi is a dinosaur-like character that acts as an ally of Mario and Luigi.	Among members of the Yoshi species hailing from Yoshi's Island, any Yoshi may be identified as the "Yoshi" character, and as such, not all iterations of the character are necessarily the same one.
Zelda	Zelda is a princess and member of the royal family of Hyrule. She is typically depicted with blonde or brown hair and blue eyes and wears a royal dress, tunic and jewellery.	In many games, Zelda is captured by the antagonist Ganon, necessitating Link to come to her rescue. In several games she is one of the Sages or Champions whose wisdom is essential to defeating Ganon; in others, like Ocarina of Time and The Wind Waker, she adopts alternative personas to take a more active role in the story. In Skyward Sword, she is established as the mortal reincarnation of the goddess Hylia, which gives her incarnations a range of magical powers.

Select a table:

voiceactor

☒ actor_id

☒ name

☒ biography

☒ birthdate

Query

Results

actor_id	name	biography	birthdate
1	Kengo Takanashi	Kengo Takanashi is a Japanese voice actor, affiliated with Arts Vision.	1986-06-12
2	Charles Martinet	Charles Martinet is an American actor and voice actor, known for his portrayal of both Mario and Luigi in the Super Mario video game series since 1992.	1955-09-17
3	Patricia Summersett	Patricia Summersett is a Canadian actress, best known for voicing Princess Zelda in The Legend of Zelda: Breath of the Wild and Hyrule Warriors: Age of Calamity.	1983-03-15
4	Haley Joel Osment	Haley Joel Osment is an American actor and voice actor.	1988-04-10
5	David Gallagher	David Lee Gallagher is an American actor and former model.	1985-02-09
6	Fujiko Takimoto	Fujiko Takimoto is a Japanese voice actress from Osaka Prefecture, Japan.	1967-11-06
7	Hikari Tachibana	Hikari Tachibana is a Japanese voice actress.	1973-09-18
8	Frank Welker	Franklin Wendell Welker is an American voice actor. He began his career in the 1960s, and holds over 880 film, television, and video game credits as of 2022, making him one of the most prolific voice actors of all time.	1946-03-12
9	Harvey Atkin	Elliot Harvey Atkin was a Canadian actor best known for his roles as Morty Melnick in Meatballs, Sergeant Ronald Coleman in Cagney & Lacey, and for voicing King Koopa in The Super Mario Bros.	1942-12-18
10	Tsuguo Mogami	Tsuguo Mogami is a Japanese voice actor from Saitama Prefecture, Japan.	1980-01-18

Select a table: videogamehascharacter ▼

☒ game_name ☒ character_name ☒ actor_id ☒ character_role

Results

game_name	character_name	actor_id	character_role
Kingdom Hearts III	Riku	5	Playable
Kingdom Hearts III	Sora	4	Playable
Pokémon Red and Blue	Red		Playable
Super Mario Bros.	Bowser	9	Antagonist
Super Mario Bros.	Luigi	2	Playable
Super Mario Bros.	Mario	2	Playable
Super Mario Bros.	Yoshi	8	Supporting
Super Mario Galaxy	Bowser	9	Antagonist
Super Mario Galaxy	Luigi	2	Playable
Super Mario Galaxy	Mario	2	Playable
The Legend of Zelda: Breath of the Wild	Calamity Ganon	10	Antagonist
The Legend of Zelda: Breath of the Wild	Link	1	Playable
The Legend of Zelda: Breath of the Wild	Zelda	3	Supporting
The Legend of Zelda: The Minish Cap	Link	6	Playable
The Legend of Zelda: The Minish Cap	Zelda	7	Playable

Select a table: post ▼

☒ post_id ☒ title ☒ body ☒ views ☒ username ☒ time_created

Results

post_id	title	body	views	username	time_created
1	Review of the game	I played the game for 50 years since I was 7-year old in 2001. I really enjoyed the game. Highly recommended!	17	andy613	2021-01-25
2	Looking for some advices	Hello I am new to the game, need some advices!	111	andy613	2023-02-21
3	Anyone else had this bug?	The game just crashed for no reason	5	allend	2023-02-21
4	My favorite video game character	I just wanted to share my love for my favorite video game character.	15	john	2023-02-22
5	Video game blog!	Hey everyone, I decided to have a blog for myself, I'll post updates daily, please follow!	8	andy613	2023-02-25

Select a table:

☒ ☒

Results

post_id	game_name
4	Fez
3	Outer Wilds
1	Pokémon Red and Blue
4	Super Mario Galaxy
2	Untitled Goose Game

Select a table:

☒ ☒ ☒ ☒

Results

username	email	user_password	user_role
allend	631938@gmail.com	securePassword	member
andy613	andy6138213@gmail.com	UIQHE@3h8@JQO_(@	admin
jk222	jk22201@gmail.com	password3838	sub_admin
john	johnkkkkkm@gmail.com	absolqjwk139	banned
random	sbshaun2019@gmail.com	92109211k	admin

Select a table:

☒ ☒ ☒ ☒ ☒

Results

comment_id	body	username	time_created	post_id
1	great game!	andy613	2023-02-25	1
2	really enjoyed playing	jk222	2023-02-24	2
3	add me: y89019	random	2023-02-23	1
4	the game is classic, everyone should give it try!	jk222	2023-02-22	1
5	lol the game is so badly designed	allend	2023-02-21	3

Select a table:



user_role



post_permission



remove_post_permission



change_roles_permission

Query

Results

user_role	post_permission	remove_post_permission	change_roles_permission
admin	1	1	1
banned	0	0	0
developer	1	1	1
member	1	0	0
sub_admin	1	1	0

SQL Queries in Code

INSERT Operation

❖ server/src/controllers/videogameController.ts: 112

```
111
112      await queryAsync('INSERT INTO videogame SET ?', [game]);
```

DELETE Operation

❖ server/src/controllers/videogameController.ts: 176:

```
175      try {
176        await queryAsync('DELETE FROM videogame WHERE name = ?', [name]);
177        res.status(200).json({ message: 'Videogame deleted' });
178      } catch (err: any) {
179        res.status(500).json({ error: err.message });
180      }
```

UPDATE Operation

❖ server/src/controllers/videogameController.ts: 161

```
161      await queryAsync('UPDATE videogame SET ? WHERE name = ?', [game, name]);
```

Selection

❖ server/src/controllers/videogameController.ts: 47

```
44      let query = `SELECT ${sanitizedColumns.join(', ')} FROM videogame`;
45
46      if (ratingFilter) {
47        query += ' WHERE rating = ?';
48      }
49
50      try {
51        const results = await queryAsync(query, [ratingFilter]);
52        res.status(200).json(results);
53      } catch (err: any) {
54        res.status(500).json({ error: err.message });
55      }
```

Projection

- ❖ server/src/controllers/projectionController.ts: 30

```
29  
30  const query = `SELECT ${formattedColumns.join(', ')} FROM ${tableName}`;  
31
```

Join

- ❖ server/src/controllers/DeveloperController.ts: 29

```
sql: `SELECT *  
FROM developer D, studio S, country C  
WHERE D.name = S.name  
AND S.country = C.country  
AND D.name = '${name}'`,
```

Aggregation with Group By

- ❖ server/src/controllers/StatsController.ts: 11

```
`SELECT ${group} AS category, ${measurement}(sales) AS result FROM videogame  
WHERE ${group} IS NOT NULL  
GROUP BY ${group}`,
```

Aggregation with Having

- ❖ server/src/controllers/StatsController.ts: 27

```
`SELECT ${group} AS category, COUNT(*) AS result FROM videogame  
WHERE ${group} IS NOT NULL  
GROUP BY ${group}  
HAVING result ${body.operation} ${body.count} ORDER BY result DESC`
```

Nested Aggregation with Group By

- ❖ server/src/controllers/FranchiseController.ts: 45

```
`WITH SalesTemp AS (  
  SELECT ${group} AS category, ${measurement}(sales) AS result FROM videogame  
  WHERE ${group} IS NOT NULL  
  GROUP BY ${group}  
)  
SELECT * FROM SalesTemp  
WHERE result = (SELECT ${extrema}(result) FROM SalesTemp),
```

Division

❖ server/src/controllers/FranchiseController.ts: 17

```
`SELECT * FROM characters C WHERE NOT EXISTS(  
  SELECT * FROM videogame V WHERE franchise_name = '${franchiseName}' AND NOT EXISTS (  
    SELECT * FROM videogamehascharacter WHERE game_name = V.name AND character_name = C.name  
  )  
)`
```

SQL Queries And Demonstration Of Functionalities

INSERT

Before INSERT:

localhost:3000/projects

Video GamesFranchisesStudiosStatsAll Data

Select a table: videogame

☒ name☒ release_date☒ genre☒ synopsis☒ rating☒ sales☒ developer_name☒ start_date☒ end_date☒ franchise_name

Query

Results

franchise_name	name	release_date	genre	synopsis	rating	sales	developer_name	start_date	end_date
	Braid 2	2008-08-06	Puzzle-platform	Braid is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	E10+	111	Jonathan Blow	2004	2010
	Fat	2012-04-13	Puzzle-platform	The player-character Gomez receives a fax that reveals his two-dimensional (2D) world to be one of four sides of a three-dimensional (3D) world.	E	1000000	Phil Fish	2007	2012
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Super Mario	Super Mario Galaxy	2007-11-01	Platform	As Mario, the player embarks on a quest to rescue Princess Peach, save the universe from Bowser, and collect 120 Power Stars, after which the player can play the game as Luigi for a more difficult experience.	E	12800000	Nintendo	2004	2007
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	Untitled Goose Game	2019-09-20	Puzzle	Players control a goose who bothers the inhabitants of an English village.	E	1000000	House House		2019

During INSERT:

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Video GamesFranchisesStudiosStatsAll Data

Video Games

☒ name☒ release_date☒ genre☒ synopsis☒ rating☒ sales☒ developer_name☒ start_date

☒ end_date☒ franchise_name

Filter by rating

Select All

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Cancel

Name: Braid

Release Date: 2008-08-06

Genre: Puzzle-platform

Synopsis: Braid is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.

Rating: E10+

Sales: 1111111

Developer Name: Jonathan Blow

Start date: 2004

End date: 2010

Franchise Name:

Add

name	release_date	genre	synopsis	rating	sales	developer_name	start_date	end_date	franchise_name	Edit	Delete
Braid 2	2008-08-06	Puzzle-platform	Braid is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	E10+	111	Jonathan Blow	2004	2010		Edit	Delete
Fat	2012-04-13	Puzzle-platform	The player-character Gomez receives a fax that reveals his two-dimensional (2D) world to be one of four sides of a three-dimensional (3D) world.	E	1000000	Phil Fish	2007	2012		Edit	Delete
Grand Theft Auto V	2013-09-17	Action-adventure	Set within the fictional state of San Andreas, based on Southern California, the single-player story follows three protagonists—retired bank robber Michael De Santa, street gangster Franklin Clinton, and drug dealer and gunrunner Trevor Philips—and their attempts to control heists while under pressure from a corrupt government agency and powerful criminals.	M	175000000	Rockstar North	2008	2022	Grand Theft Auto	Edit	Delete

After INSERT:

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Video GamesFranchisesStudiosStatsAll Data

Select a table: videogame

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☒ end_date

☒ franchise_name

Query

Results

name	release_date	genre	synopsis	rating	sales	developer_name	start_date	end_date	franchise_name
Brat	2008-08-06	Puzzle-platform	Brat is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	E10+	1111111	Jonathan Blow	2004	2010	
Brat 2	2008-08-06	Puzzle-platform	Brat is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	E10+	111	Jonathan Blow	2004	2010	
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Kentucky Route Zero	2020-01-28	Point-and-click-adventure	Kentucky Route Zero follows the narrative of a truck driver named Conway and the strange people he meets as he tries to cross the mysterious Route Zero in Kentucky to make a final delivery for the antiques company for which he works.	T					
Kingdom Hearts II	2010-01-25	Action-role-playing	Kingdom Hearts II is the twelfth installment in the Kingdom Hearts series, and serves as a conclusion of the "Dark Seeker Saga" story arc that began with the original game.	E10+	6700000	Square Enix		2018	Kingdom Hearts
Outer Wilds	2019-05-28	Action-adventure	Named Game of the Year 2019 by Giant Bomb, Polygon, Eurogamer, and The Guardian, Outer Wilds is a critically-acclaimed and award-winning open world mystery about a solar system trapped in an endless time loop.	E10+	4000000	Mobius Digital	2012	2021	
Papers, Please	2013-08-08	Puzzle	As an immigration officer, the player must review each immigrant and return passports and other supporting paperwork against an ever-growing list of rules using a number of tools and guides.	M	1800000	Lucas Pope	2010	2014	
Pokémon Red and Blue	1998-09-28	Role-playing	The player controls the protagonist from an overhead perspective and navigates him throughout the fictional region of Kanto in a quest to master Pokémon battling.	E	31380000	Game Freak	1990	1998	Pokémon
Return of the Obra Dinn	2018-10-18	Adventure	Set in 1802, the player assumes the role of insurance inspector for the East India Company. The Obra Dinn, a merchant ship missing for five years, has reappeared off the coast of England with no one alive aboard. The player is dispatched to the ghost ship to perform an appraisal, reconstruct the events of the voyage, and determine the fates of all sixty souls aboard, providing a cause of death for those deceased or a probable current location for those presumed living.	M		Lucas Pope		2020	
Stardew Valley	2016-02-26	Simulation	Players take the role of a character who inherits a dilapidated farm in a place known as Stardew Valley.	E10+	20000000	Eric Barone	2011	2021	
Super Mario Bros.	1985-09-13	Platform	Players control Mario, or his brother Luigi in the multiplayer mode, as they traverse the Mushroom Kingdom to rescue Princess Toadstool from King Koopa (later named Bowser).	E	40240000	Nintendo		1987	Super Mario
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UPDATE

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Select a table: videogame

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Query

Results

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Video Games

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end_date ↕ franchise_name ↕ Filter by rating

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Fetch Video Games

Name: Braid

Release Date: 2008-08-06

Genre:

Synopsis: update demo

Rating: E

Sales: 7777777

Developer Name: Jonathan Blow

Start date: 2004

End date: 2010

Franchise Name:

Submit

name	release_date	genre	synopsis	rating	sales	developer_name	start_date	end_date	franchise_name	Edit	Delete
Braid	2008-08-06	Puzzle-platform	Braid is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	E10+	1111111	Jonathan Blow	2004	2010		Edit	Delete
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Query

Results

name	release_date	synopsis	genre	rating	sales	developer_name	start_date	end_date	franchise_name
Braid	2008-08-06	update demo	Puzzle-platform	E	7777777	Jonathan Blow	2004	2010	
Braid 2	2008-08-06	Braid is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	Puzzle-platform	E10+	111	Jonathan Blow	2004	2010	
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SELECTION

Before SELECTION:

Video Games

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Fetch Video Games

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Add Video Game

name	release_date	genre	synopsis	rating	sales	developer_name	start_date	end_date	franchise_name	Edit	Delete
Braid	2022-08-06	Puzzle-platform	Braid is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	E10	100000	Jonathan Blow	2005	2011	Grand Theft Auto	<div>Edit</div>	<div>Delete</div>
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During SELECTION:

Video Games

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Add Video Game

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PROJECTION

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Video Games

Franchises

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Video Games

Franchises

Studios

Stats

Projections

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comment

country

developer

franchise

individualdeveloper

post

posttagsvideogame

roles

studio

users

videogame

videogamehascharacter

voiceactor

2. Select columns

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Studios

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Projections

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☒ year_established

☐ country

☐ phone_number

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year_established

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Select a table:

studio

☒ name

☒ year_established

☐ country

☐ phone_number

Query

Results

name	year_established
Capcom	1979
Game Freak	1989
House House	2014
Mobius Digital	2013
Nintendo	1889
Rockstar North	1987
Square Enix	2003

DELETE

Before DELETE:

← → ↺

localhost:3000/projections

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Video Games

Franchises

Studios

Stats

All Data

Select a table:

videogame

☒ name

☒ release_date

☒ genre

☒ synopsis

☒ rating

☒ sales

☒ developer_name

☒ start_date

☒ end_date

☒ franchise_name

Query

Results

name	release_date	synopsis	genre	rating	sales	developer_name	start_date	end_date	franchise_name
Brat	2008-08-06	update demo		E	7777777	Jonathan Blow	2004	2010	
Brat 2	2008-08-06	Brat is a puzzle platformer, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue		E		Jonathan Blow	2004	2010	
Fall	2012-04-13	The player-character Gomez receives a fax that reveals his two-dimensional (2D) world to be one of four sides of a three-dimensional (3D) world.	Puzzle-platform	E	1000000	Phi Fish	2007	2012	
Grand Theft Auto V	2013-03-17	Set within the fictional state of San Andreas, based on Southern California, the single-player story follows three protagonists—retired bank robber Michael De Santa, street gangster Franklin Clinton, and drug dealer and gunrunner Trevor Philips—and their attempts to commit heists while under pressure from a corrupt government agency and powerful criminals.	Action-adventure	M	175000000	Rockstar North	2008	2022	Grand Theft Auto
Kentucky Route Zero	2020-05-28	Kentucky Route Zero follows the narrative of a truck driver named Conway and the strange people he meets as he tries to cross the mysterious Route Zero in Kentucky to make a final delivery for the antiques company for which he works.	Point-and-click-adventure	E					
Kingdom Hearts II	2010-01-25	Kingdom Hearts II is the twelfth installment in the Kingdom Hearts series, and serves as a conclusion of the "Dark Seeker Saga" story arc that began with the original game.	Action role-playing	E10+	6700000	Square Enix		2016	Kingdom Hearts
Outer Wilds	2019-05-28	Named Game of the Year 2019 by Giant Bomb, Polygon, Eurogamer, and The Guardian, Outer Wilds is a critically acclaimed and award-winning open world mystery about a solar system trapped in an endless time loop.	Action-adventure	E10+	4000000	Mobius Digital	2012	2021	
Papers, Please	2013-08-08	As an immigration officer, the player must review each immigrant and return passports and other supporting paperwork against an ever-growing list of rules using a number of tools and guides.	Puzzle	M	1800000	Lucas Pope	2010	2014	
Pokémon Red and Blue	1996-09-28	The player controls the protagonist from an overhead perspective and navigates him throughout the fictional region of Kanto in a quest to master Pokémon battling.	Role-playing	E	31380000	Game Freak	1990	1998	Pokémon
Return of the Obra Dinn	2018-10-18	Set in 1802, the player assumes the role of insurance inspector for the East India Company, the Obra Dinn, a merchant ship missing for five years, has washed up off the coast of England with its one alive aboard. The player is dispatched to the ghost ship to perform an appraisal, reconstruct the events of the voyage, and determine the fates of all sixty souls aboard, avoiding a state of death for those deceased or a probable current location for those presumed living.	Adventure	M		Lucas Pope		2020	
Stardew Valley	2016-02-26	Players take the role of a character who inherits a dilapidated farm in a place known as Stardew Valley.	Simulation	E10+	20000000	Eric Barone	2011	2021	
Super Mario Bros.	1985-09-13	Players control Mario, or his brother Luigi in the multiplayer mode, as they traverse the Mushroom Kingdom to rescue Princess Toadstool from King Koopa (later named Bowser).	Platform	E	40040000	Nintendo	1987		Super Mario
Super Mario Galaxy	2007-11-01	As Mario, the player embarks on a quest to rescue Princess Peach, save the universe from Bowser, and collect 120 Power Stars, after which the player can play the game as Luigi for a more difficult experience.	Platform	E	12800000	Nintendo	2004	2007	Super Mario
Super Meat Boy	2010-10-20	The player controls Meat Boy, a red, cube-shaped character, as he attempts to rescue his girlfriend, Bandage Girl, from the antagonist Dr. Fetus.	Platform	T	1000000	Edmund McMillen	2008	2010	
The Legend of Zelda: Breath of the Wild	2017-03-03	The player controls an amnesiac Link, who awakens from a hundred-year slumber, and attempts to regain his memories, save princess Zelda and prevent the further destruction of Hyrule by Calamity Ganon.	Action-adventure	E10+	29000000	Nintendo		2017	The Legend of Zelda
The Legend of Zelda: The Minish Cap	2004-11-04	The Minish Cap continues the story of the Four Swords, a weapon introduced in Four Swords and Four Swords Adventures. The game retains many elements common to previous Zelda games, especially top-down predecessors such as A Link to the Past, and includes new features and mechanics.	Action-adventure	E		Capcom		2005	The Legend of Zelda
The Witness	2016-01-16	The player progresses by solving puzzles, which are based on interactions with grids presented on panels around the island or paths hidden within the environment.	Puzzle	E	100000	Jonathan Blow	2008	2016	
Unlabeled Gnome Game	2019-09-20	Players control a gnome who befriends the inhabitants of an English village.	Puzzle	E	1000000	House House		2019	

During DELETE:

Video Games

name release_date genre synopsis rating sales developer_name start_date
end_date franchise_name Filter by rating

Select All
Unselect All
Fetch Video Games

Add Video Game

name	release_date	genre	synopsis	rating	sales	developer_name	start_date	end_date	franchise_name	Edit	Delete
Braid	2008-08-08		update demo	E	7777777	Jonathan Blow	2004	2010		Edit	Delete
Braid 2	2008-08-08	Puzzle-platform	Braid is a puzzle-platformer, drawn in a painterly style, where you can manipulate the flow of time to change and unravel ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted princess.	TDS+	111	Jonathan Blow	2004	2010		Edit	Delete
Fall	2012-04-13	Puzzle-platform	The player-character Gomez receives a fax that reveals his two-dimensional (2D) world will be one of four sides of a three-dimensional (3D) world.	E	1000000	Phil Fish	2007	2012		Edit	Delete
Grand Theft Auto V	2013-09-17	Action-adventure	Set within the fictional state of San Andreas, based on Southern California, the single-player story follows three protagonists—retired bank robber Michael De Santa, street gangster Franklin Clinton, and drug dealer and gunrunner Trevor Philips—and their attempts to control hells while under pressure from a corrupt government agency and powerful criminals.	M	175000000	Rockstar North	2008	2012	Grand Theft Auto	Edit	Delete
Kentucky Route Zero	2010-01-28	Point-and-click adventure	Kentucky Route Zero follows the narrative of a truck driver named Conway and the strange people he meets as he tries to cross the mysterious Route Zero in Kentucky to make a final delivery for the antique company for which he works. Kingdom Hearts II is the	T						Edit	Delete

After DELETE:

localhost:3000/projects

Video Games Franchises Studios Stats All Data

Select a table: **videogame**

☒ name
 ☒ release_date
 ☒ genre
 ☒ synopsis
 ☒ rating
 ☒ sales
 ☒ developer_name
 ☒ start_date
 ☒ end_date
 ☒ franchise_name

Results

name	release_date	genre	synopsis	rating	sales	developer_name	start_date	end_date	franchise_name
Brain 2	2008-09-08	Puzzle-platform	Brain is a puzzle-platform, drawn in a painterly style, where you can manipulate the flow of time in strange and unusual ways. From a house in the city, journey to a series of worlds and solve puzzles to rescue an abducted prince.	E10+	191	Jonathan Blow	2004	2010	
Fixa	2012-04-13	Puzzle-platform	The player character Gormel receives a fixa that reveals his two dimensional (2D) world to be one of four sides of a three-dimensional (3D) world.	E	1000000	Phil Fish	2007	2012	
Grand Theft Auto V	2013-09-17	Action-adventure	Set within the fictional state of San Andreas, based on Southern California, the single player story follows three protagonists—retired bank robber Michael De Santa, street gangster Franklin Clinton, and drug dealer and gunrunner Trevor Philips—and their attempts to correct kinks while under pressure from a corrupt government agency and powerful criminals.	M	175000000	Rockstar North	2008	2022	Grand Theft Auto
Kentucky Route Zero	2020-02-28	Point-and-click adventure	Kentucky Route Zero follows the narrative of a truck driver named Conway and the strange people he meets as he tries to cross the mysterious Route Zero in Kentucky to make a final delivery for the antigens company for which he works.	T					
Kingdom Hearts II	2019-07-25	Action role-playing	Kingdom Hearts II is the twelfth instalment in the Kingdom Hearts series, and serves as a conclusion of the "Dark Seer Saga" story arc that began with the original game.	E10+	6700000	Square Enix		2016	Kingdom Hearts
Outer Worlds	2019-05-28	Action-adventure	Named Game of the Year 2019 by Giant Bomb, Polygon, Eurogamer, and The Guardian, Outer Worlds is a critically-acclaimed and award-winning open world mystery about a solar system trapped in an endless time loop.	E10+	4000000	Mobius Digital	2012	2021	
Papers, Please	2013-09-08	Puzzle	As an immigration officer, the player must review each immigrant and return passports and other supporting paperwork against an ever-growing list of rules using a number of tools and guides.	M	1800000	Lucas Pope	2010	2014	
Pokémon Red and Blue	1998-09-28	Role-playing	The player controls the protagonist from an overhead perspective and navigates him throughout the fictional region of Kanto in a quest to master Pokémon battling.	E	31380000	Game Freak	1990	1998	Pokémon
Return of the Obba Babba	2019-10-18	Adventure	Set in 1803, the player assumes the role of insurance inspector for the East India Company. The Obba Babba, a merchant ship missing for five years, has reappeared off the coast of England with no one alive aboard. The player is dispatched to the ghost ship to perform an appraisal, reconstruct the events of the voyage, and determine the fates of all of sixty souls aboard, providing a route of search for those deceased on a probable correct location for those presumed living.	M		Miles Pope		2020	
Starline Valley	2016-02-28	Simulation	Players take the role of a character who inherits a dislocated firm in a place known as Starline Valley.	E10+	20000000	Eric Barone	2011	2021	
Super Mario Bros.	1985-09-13	Platform	Papers control Mario, or his brother Luigi in the multiplayer mode, as they traverse the Mushroom Kingdom to rescue Princess Peach from King Koopa (later named Bowser).	E	48024000	Nintendo		1987	Super Mario
Super Mario Galaxy	2007-11-01	Platform	As Mario, the player embarks on a quest to rescue Princess Peach, save the universe from Bowser, and collect 120 Power Stars, after which the player can play the game as Luigi for a more difficult experience.	E	10000000	Nintendo	2004	2007	Super Mario
Super Meat Boy	2010-10-20	Platform	The player controls Meat Boy, a red, cube-shaped character, as he attempts to rescue his girlfriend, Bandage Girl, from the antagonistic Dr. Fetus.	T	1000000	Edmund McMillen	2008	2010	
The Legend of Zelda: Breath of the Wild	2017-03-03	Action-adventure	The player controls an amnesiac Link, who awakens from a hundred-year slumber, and attempts to regain his memories, save princess Zelda and prevent the further destruction of Hyrule by Calamity Ganon.	E10+	29000000	Nintendo		2017	The Legend of Zelda
The Legend of Zelda: The Minish Cap	2004-11-04	Action-adventure	The Minish Cap continues the story of the Four Swords, a weapon introduced in Four Swords and Four Swords Adventures. The game relates many elements common to previous Zelda games, especially top-down predecessors such as A Link to the Past, and includes new features and mechanics.	E		Capcom		2005	The Legend of Zelda
The Witness	2016-01-16	Puzzle	The player progresses by solving puzzles, which are based on interactions with grids presented on panels around the island or paths hidden within the environment.	E	100000	Jonathan Blow	2008	2016	
Untitled Goose Game	2019-09-20	Puzzle	Players control a grouse who bothers the inhabitants of an English village.	E	1000000	Horse House		2019	

JOIN

Before JOIN:

Video GamesFranchisesStudiosStatsAll Data

Select a table: developer

☒ name☒ website_link☒ descriptionQuery

Results

name	website_link	description
Capcom	www.capcom.com	Capcom Co., Ltd. is a Japanese video game developer and publisher.
Edmund McMillen		Edmund McMillen is an American video game designer and artist known for his Flash game visual style.
Eric Barone		Eric Barone, also known by his alias ConcernedApe, is an American video game developer, video game designer, artist, composer, and musician.
Game Freak	www.gamefreak.co.jp	Game Freak Co., Ltd. is a Japanese video game developer, best known as the primary developer of the mainline Pokémon series of role-playing video games published by Nintendo and The Pokémon Company.
House House	househouse	House House is an independent video game developer based in Melbourne, Australia.
Jonathan Blow	http://number-none.com/blow	Jonathan Blow is an American video game designer and programmer.
Lucas Pope	dulope.com	Lucas Pope is an American video game designer. He is best known for experimental indie games, notably Papers, Please and Return of the Obra Dinn.
Mobius Digital	www.mobiusdigitalgames.com	
Nintendo	nintendo.com	Nintendo Co., Ltd. is a Japanese multinational video game company headquartered in Kyoto. It develops and releases both video games and video game consoles.
Phil Fish		Phil Fish is a French Canadian former indie game designer best known for his work on the 2012 platform game Fez.
Rockstar North	rockstarnorth.com	Rockstar North Limited (formerly DMA Design Limited) is a British video game development company and a studio of Rockstar Games based in Edinburgh.
Square Enix	square-enix.com	Square Enix Holdings Co., Ltd. is a Japanese multinational holding company, production enterprise and entertainment conglomerate, best known for its Final Fantasy, Dragon Quest, Star Ocean and Kingdom Hearts role-playing video game franchises, among numerous others.

Video GamesFranchisesStudiosStatsAll Data

Select a table: studio

☒ name☒ year_established☒ country☒ phone_numberQuery

Results

name	year_established	country	phone_number
Capcom	1979	Japan	
Game Freak	1989	Japan	(334) 674-387
House House	2014	Australia	
Mobius Digital	2013	United States	
Nintendo	1889	Japan	(800) 255-3700
Rockstar North	1987	United Kingdom	
Square Enix	2003	Japan	

Video GamesFranchisesStudiosStatsAll Data

Select a table: country

☒ country☒ country_codeQuery

Results

country	country_code
Australia	61
Canada	1
Japan	81
United Kingdom	44
United States	1

During JOIN:

Video GamesFranchisesStudiosStatsAll Data

Studios

Select Studio

Select StudioHouse HouseCapcomGame FreakNintendoSquare EnixRockstar NorthMobius Digital

After JOIN:

Video Games

Franchises

Studios

Stats

All Data

Studios

Game Freak

Game Freak

Website

www.gamefreak.co.jp

Phone

+81 (334) 674-387

Country

Japan

Established

1989

Game Freak Co., Ltd. is a Japanese video game developer, best known as the primary developer of the mainline Pokémon series of role-playing video games published by Nintendo and The Pokémon Company.

DIVISION

Before DIVISION applied:

Franchises

Characters In All

Select Franchise

name

description

history

During DIVISION:

Characters In All

Select Franchise

name

description

history

Select Franchise
Grand Theft Auto
Kingdom Hearts
Pokémon
Super Mario
The Legend of Zelda

After DIVISION applied: Finds the characters that appear in every single video game in the franchise

Characters In All

Kingdom Hearts

name	description	history
Riku	Riku is a calm, cool, collected teenager who is not afraid to push the boundaries. He is tall and muscular with pale skin, bright blue-green eyes and silver hair.	Riku is introduced as a teenager who wishes to visit other worlds with his friends Sora and Kairi. After a way to other worlds is opened, Riku meets the evil fairy Maleficent who pits him against Sora, leading to Riku falling to darkness and ultimately being possessed by Ansem, Seeker of Darkness. Riku is freed thanks to Sora and returns as a protagonist in following games.
Sora	Sora is the main protagonist and main playable character in most of the Kingdom Hearts series.	He is a Keyblade wielder from the Destiny Islands where he, along with his childhood friends Riku and Kairi, dreamed of venturing away to find out what lies beyond their home.

AGGREGATION WITH GROUP BY

- User can choose to groups video games by either franchise, rating or genre, and can apply the SUM and AVG aggregation to finds the total sales/average sales for each

Before:

Stats

Measure SalesCount GroupsSales Extrema

Measure Sales

Select GroupSelect MeasureQuery

During Aggregation:

Measure Sales

Count Groups

Sales Extrema

Measure Sales

Select Group ▾
Select Group
Franchise
Rating
Genre

Select Measure ▾

Query

Measure Sales

Count Groups

Sales Extrema

Measure Sales

Franchise ▾

Select Measure ▾
Select Measure
Total Sales
Average Sales

Query

After SUM aggregation with GROUP BY franchise:

Franchise	Total Sales (\$)
Grand Theft Auto	175000000
Kingdom Hearts	6700000
Pokémon	31380000
Super Mario	53040000
The Legend of Zelda	29000000

After AVG aggregation with GROUP BY rating:

Measure SalesCount GroupsSales Extrema

Measure Sales

RatingAverage SalesQuery

Rating	Average Sales (\$)
E10+	14925000.0000
E	14420000.0000
M	88400000.0000
T	1000000.0000

AGGREGATION WITH HAVING

- User can group video games by either franchise, rating or genre and display the ones that have a count equal to, greater than, less than, greater than or equal, less than or equal, or not equal to the specified amount

Before:

Measure SalesCount GroupsSales Extrema

Count Number of Video Games Per Group

Video Games By

Select Group

 With Count

Select Operator

Query

After: Finds the franchises that have more than 2 video games in them

Measure SalesCount GroupsSales Extrema

Count Number of Video Games Per Group

Video Games By

Franchise

 With Count

EQUAL TO

2

Query

Franchise	Count
Super Mario	2
The Legend of Zelda	2

NESTED AGGREGATION WITH GROUP BY

- User can find the franchise, rating or genre with the highest/lowest total sales or average sales

Before:

Measure Sales

Count Groups

Sales Extrema

Find Max/Min Sales

Select Group ▾

Select Measure ▾

Select Extrema ▾

Query

After: The franchise with the max total sales

Measure Sales

Count Groups

Sales Extrema

Find Max/Min Sales

Franchise ▾

Total Sales ▾

MAX ▾

Query

Franchise	MAX Total Sales (\$)
Grand Theft Auto	175000000

After: The genre with the minimum average sales

Measure Sales

Count Groups

Sales Extrema

Find Max/Min Sales

Genre ▾

Average Sales ▾

MIN ▾

Query

Genre	MIN Average Sales (\$)
Puzzle	966666.6667